

ABSTRACT

A sensor which has high measuring sensitivity and is excellent in response is provided by forming a porous film in a sensitive section of a field-effect transistor. It comprises a porous body, which is formed on a sensitive section (here, a gate insulating film) of the field-effect transistor and has cylindrical pores which are formed almost perpendicularly to a substrate, and the field-effect transistor. It uses as a porous film a porous film which is made of a semiconductor material whose main component (except oxygen) is silicon, germanium, or a composite of silicon and germanium, or a porous film made of an insulation material whose main component is silicon oxide, which has pores perpendicular to the substrate.